

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-10 (canceled)

Claim 11 (new): A polymer actuator comprising: a plurality of gel/electrode complexes arranged in an electrolytic aqueous solution, said gel/electrode complex being composed of a polymer gel containing at least one of acidic and basic functional groups and electrodes placed in the polymer gel, said electrodes being made of a material capable of occluding and releasing hydrogen electrochemically, such that the polymer gel in the gel/electrode complex changes in pH upon application of voltage across the electrodes of the gel/electrode complexes and each of the gel/complexes changes in volume in response to the pH change.

Claim 12 (new): The polymer actuator as defined in Claim 11, wherein the electrode of the gel/electrode complex is made of any one of palladium and palladium-containing alloy.

Claim 13 (new): The polymer actuator as defined in Claim 11, wherein the electrode of the gel/electrode complex is made of hydrogen-occluding alloy coated with palladium.

Claim 14 (new): The polymer actuator as defined in Claim 11, wherein the electrode of the gel/electrode complex is in a form selected from the group consisting of a coil and a mesh.

Claim 15 (new): The polymer actuator as defined in Claim 11, wherein the electrode of the gel/electrode complex is in a form that includes any one of a granule and a fiber which is dispersed in the polymer gel.

Claim 16 (new): The polymer actuator as defined in Claim 11, wherein the electrode of the gel/electrode complex is composed of any one of a coiled and a mesh-like object and any one of a granular and a fibrous object.

Claim 17 (new): The polymer actuator as defined in Claim 11 which has more than one unit of the gel/electrode complex formed from a polymer gel containing acidic functional groups and more than one unit of the gel/electrode complex formed from a polymer gel containing basic functional groups.

Claim 18 (new): The polymer actuator as defined in Claim 11, wherein the polymer gel of the gel/electrode complex contains a mixture of a polymer containing acidic functional groups and a polymer containing basic functional groups.

Claim 19 (new): The polymer actuator as defined in Claim 11, wherein the gel/electrode complexes are arranged in a container which is filled with said electrolytic solution and said container has electrodes projecting from both ends.

Claim 20 (new): The polymer actuator as defined in Claim 19, wherein said container is capable of expanding or contracting in response to the volume change of the gel/electrode complexes.